# The Road Inventory of San Bernardino National Wildlife Refuge

## Douglas, AZ


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Federal Highway Administration
Central Federal Lands Highway Division
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# INTRODUCTION

The Transportation Equity Act for the 21st Century (Public Law 105-178) created the Refuge Roads Program. Refuge roads are those public roads that provide access to or within a unit of the National Wildlife Refuge System and for which title and maintenance responsibility is vested in the United States Government. Funds from the Highway Trust Fund are available for refuge roads and can be used by the station to pay the cost of:

(a) Maintenance and improvements of refuge roads.
(b) Maintenance and improvements of:
    (1) Adjacent vehicle parking areas
    (2) Provision for pedestrians and bicycles and
    (3) Construction and reconstruction of roadside rest areas that are located in or adjacent to wildlife refuges
(c) Administrative costs associated with such maintenance and improvements.

The funds available for refuge roads are to be disbursed based on the relative needs of the various refuges in the National Wildlife Refuge System, and taking into consideration:

(a) The comprehensive conservation plan for each refuge;
(b) The need for access as identified through land use planning; and
(c) The impact of land use planning on existing transportation facilities.

To determine the relative needs of the U.S. Fish and Wildlife Service, the Federal Highway Administration (FHWA) was asked to inventory all public access roads and parking lots and provide a condition assessment of each. In 2008 the inventory was expanded to include administrative (service use only) roads and parking lots. An FHWA representative meets with refuge personnel to identify route segments and assign route numbers and functional classifications (See Appendix) for each route. All roads and parking lots are mapped using Trimble GPS units and visually assessed for condition using the RSL method of evaluation developed at Utah State University (See Appendix). Culverts, Gates, Guardrails and Low Water Crossings are also mapped and inspected for any obvious defects.

An estimate is provided, in year 2008 dollars, based on the condition determined by the rating system. Estimates are based upon data and location factors from the 2008 RS Means Heavy Construction Cost Data 22nd Annual Edition. Cost estimates should be evaluated on a case-by-case basis when being used for programming purposes.

Native Surfaced roads and parking lots already inventoried will not be re-inventoried and will not appear individually in report chapters 5, 6 and 8. Mileages and areas of native surfaced roads and parking lots will still appear in all summaries in the report and will remain in the road inventory database. In addition to this report, the FHWA will furnish the condition ratings of each route and segment to the Fish and Wildlife Service in a Microsoft Access database so the data can be included in their Real Property Inventory.

# Summaries

Route Miles and Percentages by Functional Class and Condition

| F. C. | Condition Rating (Based on RSL)* | | | | | | | | | | TOTAL MILES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Excellent | | Good | | Fair | | Poor | | Failed | | |
| | MILES | % | MILES | % | MILES | % | MILES | % | MILES | % | |
| I | | | 0.38 | 25.0% | | | 1.13 | 75.0% | | | 1.50 |
| II | | | | | | | | | | | |
| III | | | | | | | | | | | |
| IV | 8.71 | 100% | | | | | | | | | 8.71 |
| V | | | 0.4 | 100% | | | | | | | 0.4 |
| **Totals** | **8.71** | **82.1%** | **.77** | **7%** | | | **1.13** | **10.6%** | | | **10.61** |

*For a description of condition ratings for the various surface types see the Appendix.

Route Miles and Percentages by Surface Type and Condition

| S. T. | Paved Condition Rating [Condition(RSL)] | | | | | | | | | | TOTAL MILES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Excellent (19-20) | | Good (13-18) | | Fair (7-12) | | Poor (1-6) | | Failed (0) | | |
| | MILES | % | MILES | % | MILES | % | MILES | % | MILES | % | |
| AS | | | | | | | 1.13 | 100.0% | | | 1.13 |
| CO | | | | | | | | | | | |
| **Totals** | | | | | | | **1.13** | **100%** | | | **1.13** |

| S. T. | Unpaved Condition Rating [Condition(RSL)] | | | | | | | | | | TOTAL MILES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Excellent (8-10) | | Good (5-7) | | Fair (3-4) | | Poor (1-2) | | Failed (0) | | |
| | MILES | % | MILES | % | MILES | % | MILES | % | MILES | % | |
| GR | 2.86 | 88.4% | 0.38 | 11.6% | | | | | | | 3.24 |
| NA | 5.85 | 93.7% | 0.4 | 6.3% | | | | | | | 6.25 |
| PR | | | | | | | | | | | |
| **Totals** | **8.71** | **91.9%** | **0.77** | **8.1%** | | | | | | | **9.48** |

Square Footage (Parking Areas)

| S. T. | Condition Rating | | | | | | | | | | Total Square Feet |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Excellent | | Good | | Fair | | Poor | | Failed | | |
| | Square Feet | % | Square Feet | % | Square Feet | % | Square Feet | % | Square Feet | % | |
| AS | | | | | | | 4809 | 100% | | | 4809 |
| CO | 1572 | 36.9% | 2684 | 63.1% | | | | | | | 4256 |
| GR | 3570 | 41.8% | 959 | 11.2% | | | 4011 | 47.0% | | | 8540 |
| NA | | | 61552 | 100% | | | | | | | 61552 |
| PR | | | | | | | | | | | |
| **Totals** | **5142** | **6.5%** | **65195** | **82.4%** | | | **8820** | **11.1%** | | | **79157** |

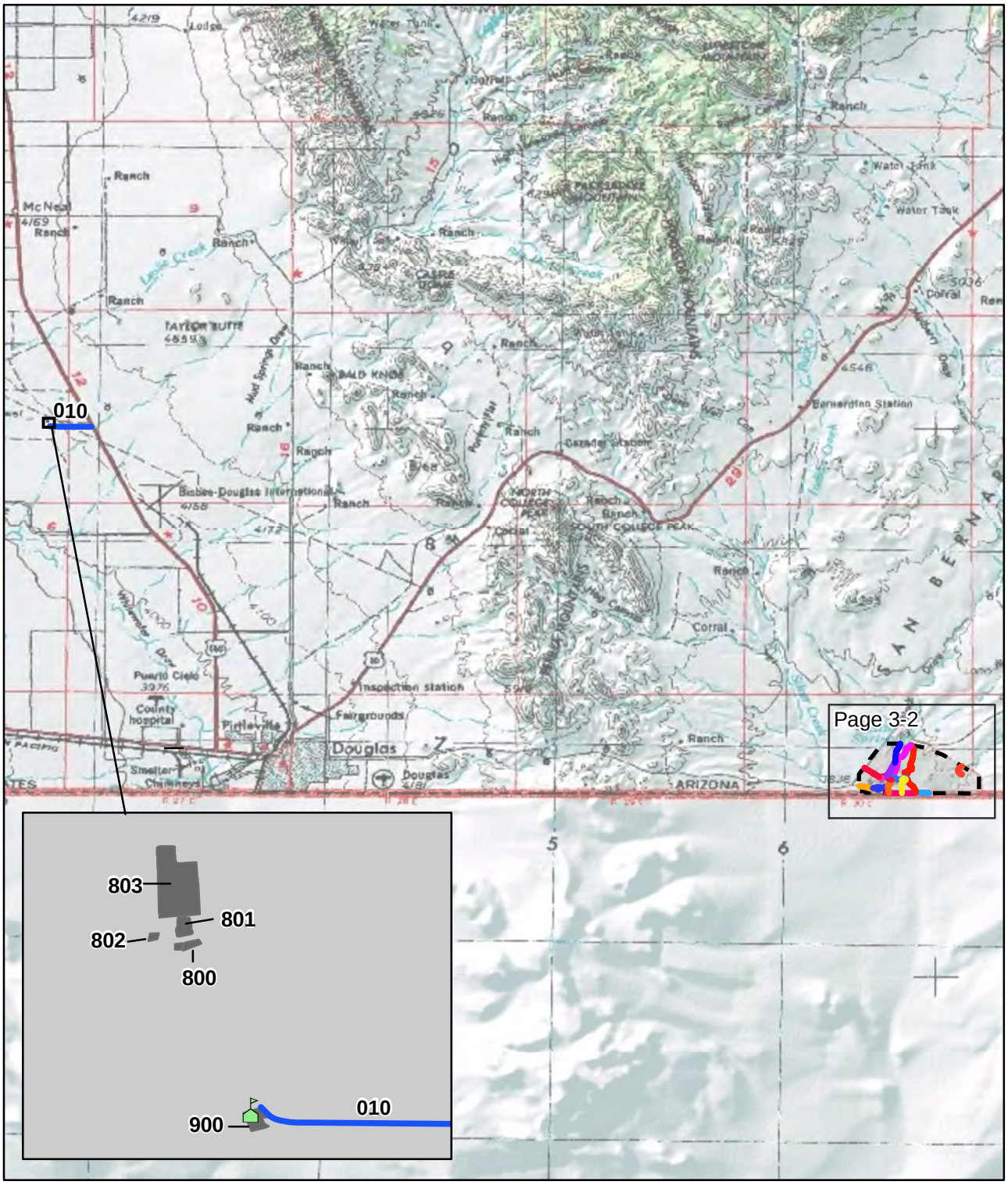
# Summaries

Route Miles and Percentages by Use Type and Condition

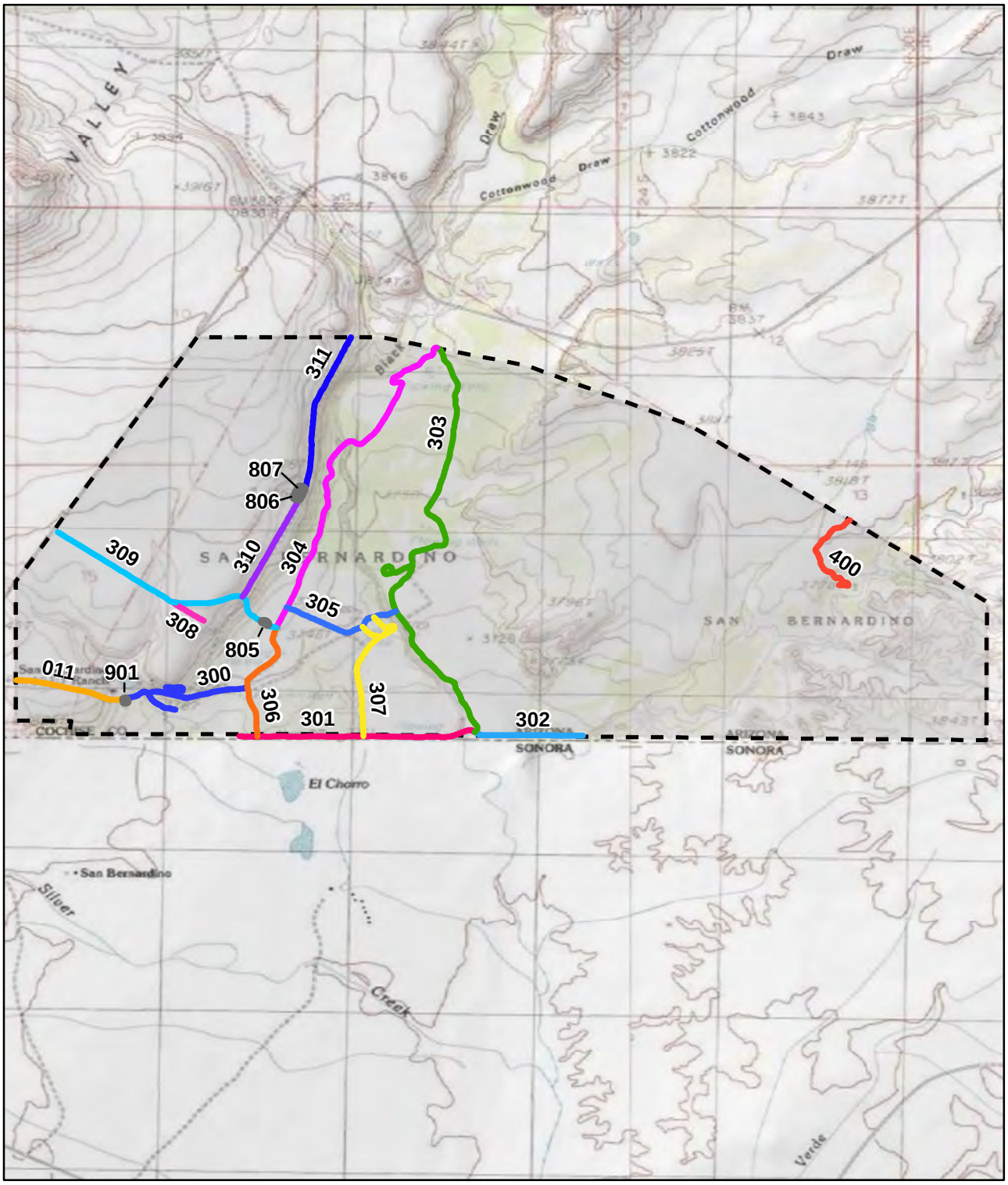
| | Road Condition Rating: Public/Administrative Use | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Excellent | | Good | | Fair | | Poor | | Failed | | TOTAL | PERCENT TOTAL |
| USE TYPE | MILES | % | MILES | % | MILES | % | MILES | % | MILES | % | MILES | MILES |
| Public (FC I-III) | | | 0.38 | 25% | | | 1.13 | 75.0% | | | 1.50 | **14%** |
| Admin (FC IV-V) | 8.71 | 95.7% | 0.40 | 4.3% | | | | | | | 9.10 | **86%** |
| **Totals** | **8.71** | **82.1%** | **.77** | **7%** | | | **1.13** | **10.6%** | | | **10.61** | |

| | Parking Condition Rating | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Excellent | | Good | | Fair | | Poor | | Failed | | Total | PERCENT TOTAL |
| | Square | | Square | | Square | | Square | | Square | | Square | SF |
| USE TYPE | Feet | % | Feet | % | Feet | % | Feet | % | Feet | % | Feet | |
| **Public** | 3570 | 42.6% | | | | | 4809 | 57.4% | | | 8379 | **11%** |
| **Admin** | 1572 | 2.2% | 65195 | 92% | | | 4011 | 5.7% | | | 70778 | **89%** |
| **Totals** | **5142** | **6.5%** | **65195** | **82.4%** | | | **8820** | **11.1%** | | | **79157** | |

# SAN BERNARDINO NATIONAL WILDLIFE REFUGE
# ROUTE LOCATION MAP 1



# SAN BERNARDINO NATIONAL WILDLIFE REFUGE
# ROUTE LOCATION MAP 2



# ROUTE IDENTIFICATION LIST (NUMERIC)

| Shading Color Key: | White = Paved Routes |
|---|---|
| | Yellow = Unpaved Routes |

| RTE # | Asset Number | ROUTE NAME | RTE MI | ROUTE DESCRIPTION | PAVED MI | UN-PAVED MI | LANES | FC |
|---|---|---|---|---|---|---|---|---|
| 010 | 10009489 | Headquarters Entrance Road | 1.13 | From Highway 191 to Visitor Center Parking Area (Rte 900) | 1.13 | - | 1 | 1 |
| 011 | <Null> | Slaughter Road | 0.38 | From Slaughter Ranch gate to Visitor Parking (Rte 909) | - | 0.38 | 2 | 1 |
| 300 | <Null> | Slaughter Administrative Road | 0.70 | From Visitor Parking (Rte 909) to Double PhD Road (Rte 306) | - | 0.70 | 1 | 4 |
| 301 | <Null> | West Border Road | 0.79 | From west of Double PhD Road (Rte 306) to Black Draw Road (Rte 303) | - | 0.79 | 1 | 4 |
| 302 | <Null> | East Border Road | 0.36 | From West Border Road (Rte 301) to end of route at Hay Hollow Wash | - | 0.36 | 1 | 4 |
| 303 | <Null> | Black Draw Trail | 1.92 | From West Border Road (Rte 301) to Northfork Road (Rte 304) | - | 1.92 | 1 | 4 |
| 304 | <Null> | Northfork Road | 1.36 | From Black Draw Trail (Rte 303) to Entrance Road (Rte 309) | - | 1.36 | 1 | 4 |
| 305 | <Null> | Calle Del Muerto | 0.42 | From Northfork Road (Rte 304) to Black Draw Trail (Rte 303) | - | 0.42 | 1 | 4 |
| 306 | <Null> | Double PhD Road | 0.48 | From Entrance Road (Rte 309) to West Border Road (Rte 301) | - | 0.48 | 1 | 4 |
| 307 | <Null> | Hackberry Road | 0.64 | From West Border Road (Rte 301) to Calle del Murerto (Rte 305) | - | 0.64 | 1 | 4 |
| 308 | <Null> | Overlook Road | 0.12 | From Entrance Road (Rte 309) to end of route | - | 0.12 | 1 | 4 |
| 309 | <Null> | Entrance Road | 0.88 | From Geronimo Trail Road to Double PhD Road (Rte 306) | - | 0.88 | 1 | 4 |
| 310 | <Null> | Shop Road | 0.42 | From Entrance Road (Rte 309) to Shop Parking #1 (Rte 806) | - | 0.42 | 1 | 4 |
| 311 | <Null> | Powerline Road | 0.62 | From Shop Parking #1 (Rte 806) to north boundary of refuge | - | 0.62 | 1 | 4 |
| 400 | <Null> | Hay Hollow Road | 0.40 | From north boundary of refuge to end of route at Hay Hollow Ponds | - | 0.40 | 1 | 5 |

## ROUTE IDENTIFICATION LIST (PARKING)

| Shading Color Key: | Green = Unpaved Parking Lots |
|---|---|
| | Blue = Paved Parking Lots |

| RTE # | ASSET NUMBER | ROUTE NAME | RTE SQFT | ROUTE DESCRIPTION | PAVED SQFT | UN-PAVED SQFT |
|---|---|---|---|---|---|---|
| 800 | <Null> | Visitor Center Parking #2 | 1572 | | 1572 | - |
| 801 | <Null> | Visitor Center Parking #3 | 4073 | | - | 4073 |
| 802 | <Null> | Visitor Center Parking #4 | 959 | | - | 959 |
| 803 | <Null> | Visitor Center Parking #5 | 38516 | | - | 38516 |
| 804 | <Null> | Visitor Center Parking #6 | 635 | | - | 635 |
| 805 | 10038313 | Restroom Parking | 3376 | | - | 3376 |
| 806 | <Null> | Shop Parking #1 | 18963 | | - | 18963 |
| 807 | <Null> | Shop Parking #2 | 2684 | | 2684 | - |
| 900 | 10038304 | Visitor Center Parking #1 | 4809 | | 4809 | - |
| 901 | <Null> | Visitor Parking | 3570 | | - | 3570 |

# CHANGES TO THE FISH AND WILDLIFE SERVICE ROAD INVENTORY REPORT

**Routes added to previous inventory:** One route added to previous inventory.

| | Rte # | Rte Name | | |
|---|---|---|---|---|
| **1.** | 011 | Slaughter Road | Rte Desc: | From Slaughter Ranch gate to Visitor Parking (Rte 909) |
| | | | Reason for Addition: | Recently constructed road |
| **2.** | | | Rte Desc: | |
| | | | Reason for Addition: | |
| **3.** | | | Rte Desc: | |
| | | | Reason for Addition: | |

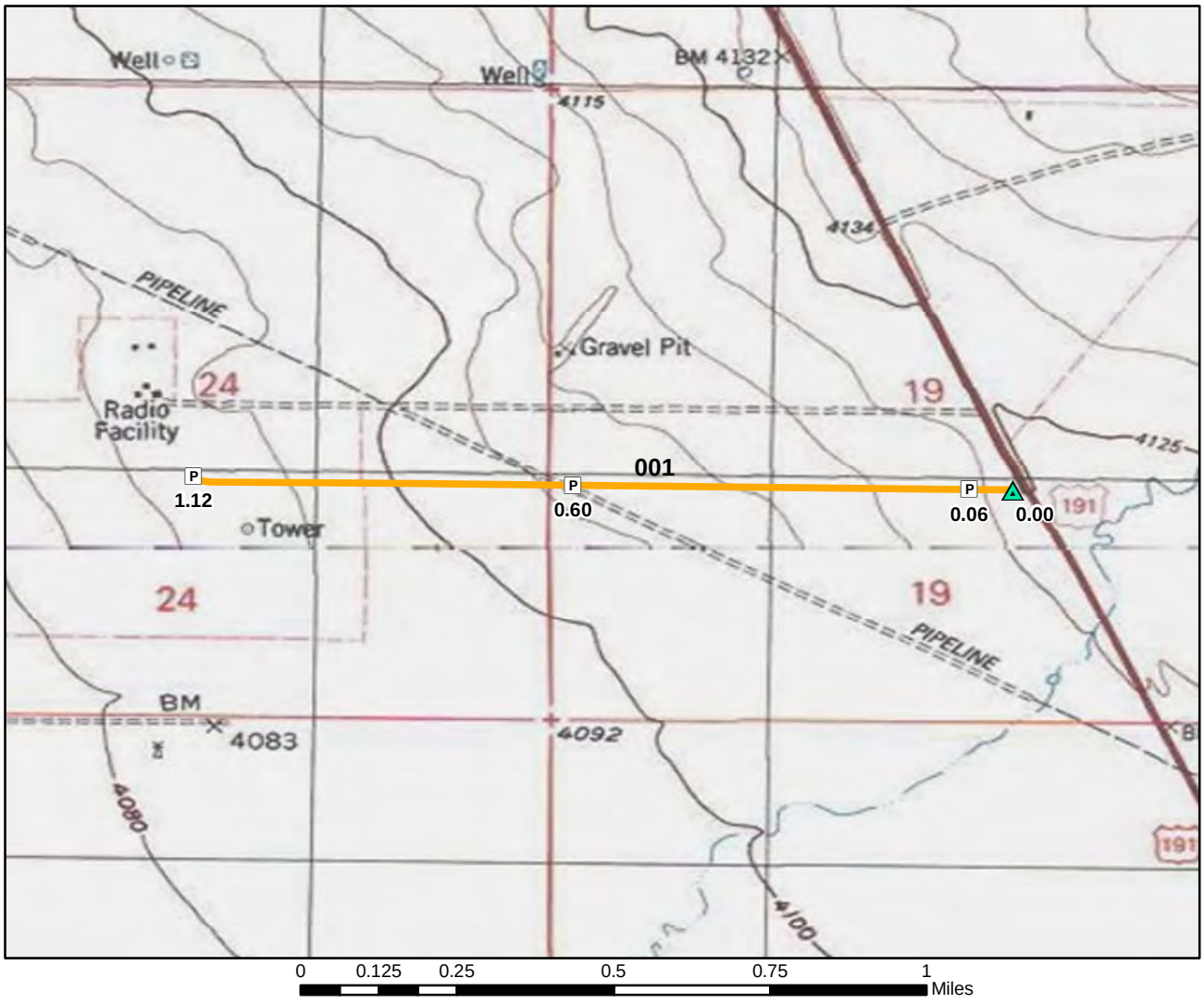
**Routes removed from previous inventory:** No routes removed from previous inventory.

| | Rte # | Rte Name | | |
|---|---|---|---|---|
| **1.** | | | Rte Desc: | |
| | | | Reason for Removal: | |
| **2.** | | | Rte Desc: | |
| | | | Reason for Removal: | |
| **3.** | | | Rte Desc: | |
| | | | Reason for Removal: | |

**Routes modified from previous inventory:** No routes modified from previous inventory.

| | Rte # | Rte Name | | |
|---|---|---|---|---|
| **1.** | | | Rte Desc: | |
| | | | Modification: | |
| **2.** | | | Rte Desc: | |
| | | | Modification: | |
| **3.** | | | Rte Desc: | |
| | | | Modification: | |

**Comments:**




Excellent | Good | Fair | Poor | Failed

Bridge | Begin Section | Boat Ramp | Gate | Low Water Crossing | Fee Station | Culvert | Intersection | Political Boundary | Deficiency | Railroad Crossing | Turnout/Parking | Visitor Center | Problem Area

N

ROUTE: 010 Headquarters Entrance Road TOTAL LENGTH: 1.13 Miles

ASSET: 10009489

RTE DESCRIPTION: From Highway 191 to Visitor Center Parking Area (Rte 900)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 1.13 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Asphalt | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 12 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Poor | | | | |
| Remaining Service Life (years) | 6 | | | | |
| Cost Estimate | $654500 | | | | |
| CRV | $1328500 | | | | |


Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

ROUTE: 011 Slaughter Road TOTAL LENGTH: 0.38 Miles

ASSET: <Null>

RTE DESCRIPTION: From Slaughter Ranch gate to Visitor Parking (Rte 909)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.38 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Gravel | | | | |
| Number of Lanes | 2 | | | | |
| Roadway Width (feet) | 18 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Good | | | | |
| Remaining Service Life (years) | 7 | | | | |
| Cost Estimate | $600 | | | | |
| CRV | $255500 | | | | |


ROUTE: 300 Slaughter Administrative Road TOTAL LENGTH: 0.70 Miles

ASSET: <Null>

RTE DESCRIPTION: From Visitor Parking (Rte 909) to Double PhD Road (Rte 306)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | 002 | 003 | | |
| Section Length (miles) | 0.42 | 0.12 | 0.15 | | |
| Inspection Date | 3/13/2008 | 3/13/2008 | 3/13/2008 | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | Native | Gravel | | |
| Number of Lanes | 1 | 1 | 1 | | |
| Roadway Width (feet) | 9 | 9 | 10 | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | Excellent | Excellent | | |
| Remaining Service Life (years) | 9 | 9 | 9 | | |
| Cost Estimate | $0 | $0 | $0 | | |
| CRV | $148200 | $42700 | $104600 | | |


ROUTE: 301 West Border Road TOTAL LENGTH: 0.79 Miles

ASSET: <Null>

RTE DESCRIPTION: From west of Double PhD Road (Rte 306) to Black Draw Road (Rte 303)

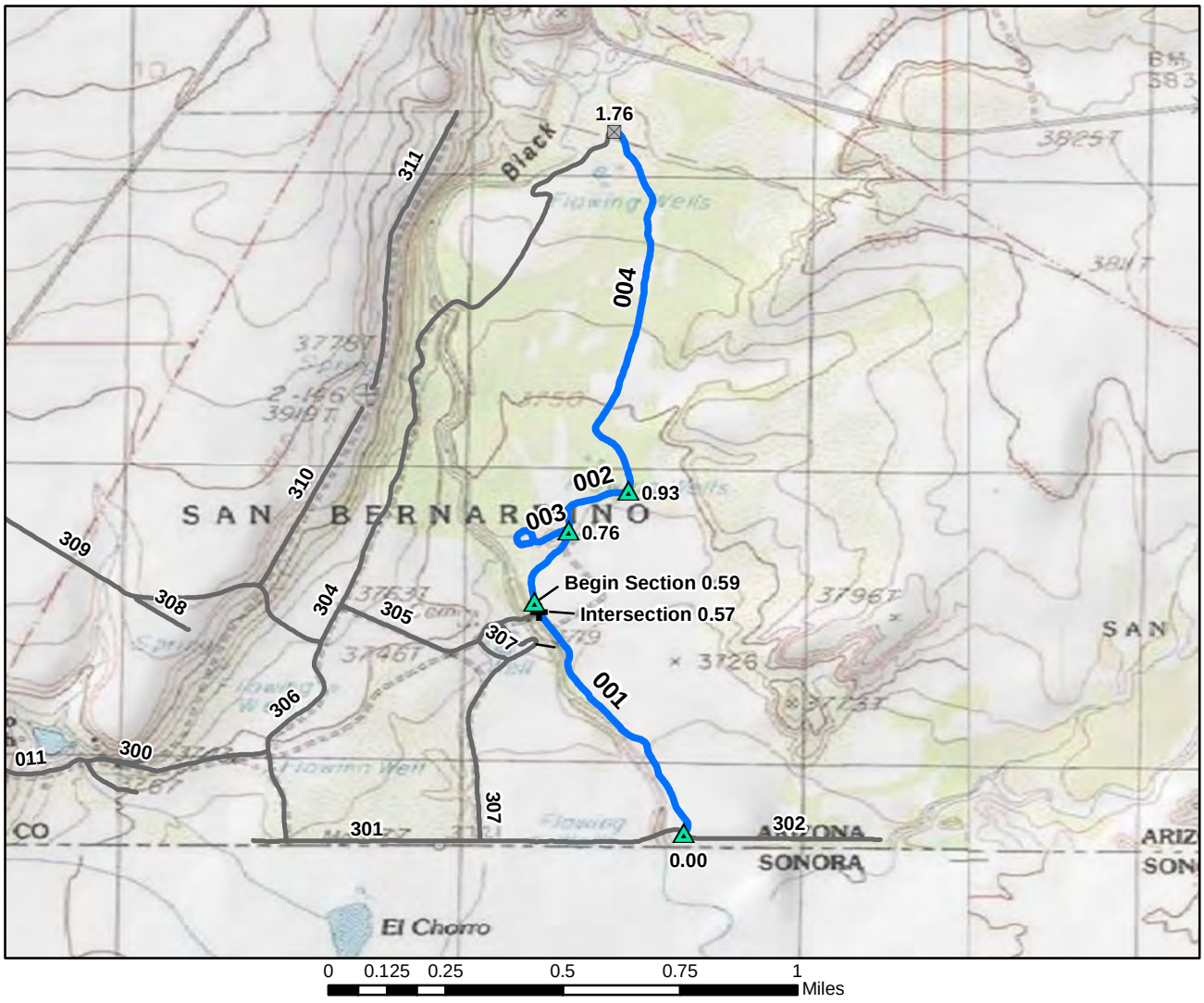
| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | 002 | | | |
| Section Length (miles) | 0.41 | 0.38 | | | |
| Inspection Date | 3/13/2008 | 3/13/2008 | | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | Native | | | |
| Number of Lanes | 1 | 1 | | | |
| Roadway Width (feet) | 10 | 12 | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | Excellent | | | |
| Remaining Service Life (years) | 9 | 8 | | | |
| Cost Estimate | $0 | $0 | | | |
| CRV | $145900 | $133100 | | | |


ROUTE: 302 East Border Road TOTAL LENGTH: 0.36 Miles

ASSET:

RTE DESCRIPTION: From West Border Road (Rte 301) to end of route at Hay Hollow Wash

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.36 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 10 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | | | | |
| Remaining Service Life (years) | 9 | | | | |
| Cost Estimate | $0 | | | | |
| CRV | $127600 | | | | |




Excellent | Good | Fair | Poor | Failed

Bridge | Begin Section | Boat Ramp | Gate | Low Water Crossing | Fee Station | Culvert | Intersection | Political Boundary | Deficiency | Railroad Crossing | Turnout/Parking | Visitor Center | Problem Area

N

ROUTE: 303 Black Draw Trail TOTAL LENGTH: 1.92 Miles

ASSET: <Null>

RTE DESCRIPTION: From West Border Road (Rte 301) to Northfork Road (Rte 304)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | 002 | 003 | 004 | |
| Section Length (miles) | 0.59 | 0.34 | 0.16 | 0.82 | |
| Inspection Date | 3/13/2008 | 3/13/2008 | 3/13/2008 | 3/13/2008 | |
| ***Section Information*** | | | | | |
| Surface Type | Native | Gravel | Native | Native | |
| Number of Lanes | 1 | 1 | 1 | 2 | |
| Roadway Width (feet) | 10 | 10 | 10 | 16 | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | Excellent | Excellent | Excellent | |
| Remaining Service Life (years) | 8 | 10 | 10 | 9 | |
| Cost Estimate | $0 | $0 | $0 | $0 | |
| CRV | $207700 | $233300 | $56400 | $289700 | |


Excellent | Good | Fair | Poor | Failed

Bridge | Begin Section | Boat Ramp | Gate | Low Water Crossing | Fee Station | Culvert | Intersection | Political Boundary | Deficiency | Railroad Crossing | Turnout/Parking | Visitor Center | Problem Area | N

ROUTE: 304 Northfork Road TOTAL LENGTH: 1.36 Miles

ASSET:

RTE DESCRIPTION: From Black Draw Trail (Rte 303) to Entrance Road (Rte 309)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | 002 | | | |
| Section Length (miles) | 1.00 | 0.36 | | | |
| Inspection Date | 3/13/2008 | 3/13/2008 | | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | Native | | | |
| Number of Lanes | 1 | 1 | | | |
| Roadway Width (feet) | 10 | 12 | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | Excellent | | | |
| Remaining Service Life (years) | 8 | 8 | | | |
| Cost Estimate | $0 | $0 | | | |
| CRV | $353300 | $125000 | | | |


Excellent | Good | Fair | Poor | Failed

Bridge | Gate | Culvert | Deficiency
Begin Section | Low Water Crossing | Intersection | Railroad Crossing | Visitor Center
Boat Ramp | Fee Station | Political Boundary | Turnout/Parking | Problem Area

N

ROUTE: 305 Calle Del Muerto TOTAL LENGTH: 0.42 Miles

ASSET: <Null>

RTE DESCRIPTION: From Northfork Road (Rte 304) to Black Draw Trail (Rte 303)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.42 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Gravel | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 12 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | | | | |
| Remaining Service Life (years) | 10 | | | | |
| Cost Estimate | $0 | | | | |
| CRV | $282700 | | | | |


ROUTE: 306 Double PhD Road TOTAL LENGTH: 0.48 Miles

ASSET:

RTE DESCRIPTION: From Entrance Road (Rte 309) to West Border Road (Rte 301)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.48 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 12 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | | | | |
| Remaining Service Life (years) | 8 | | | | |
| Cost Estimate | $0 | | | | |
| CRV | $168000 | | | | |


Excellent | Good | Fair | Poor | Failed

Bridge | Begin Section | Boat Ramp | Gate | Low Water Crossing | Fee Station | Culvert | Intersection | Political Boundary | Deficiency | Railroad Crossing | Turnout/Parking | Visitor Center | Problem Area

N

ROUTE: 307 Hackberry Road TOTAL LENGTH: 0.64 Miles

ASSET: <Null>

RTE DESCRIPTION: From West Border Road (Rte 301) to Calle del Murerto (Rte 305)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | 002 | | | |
| Section Length (miles) | 0.57 | 0.07 | | | |
| Inspection Date | 3/13/2008 | 3/13/2008 | | | |
| ***Section Information*** | | | | | |
| Surface Type | Gravel | Gravel | | | |
| Number of Lanes | 1 | 1 | | | |
| Roadway Width (feet) | 12 | 12 | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | Excellent | | | |
| Remaining Service Life (years) | 9 | 10 | | | |
| Cost Estimate | $0 | $0 | | | |
| CRV | $387600 | $47200 | | | |


Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

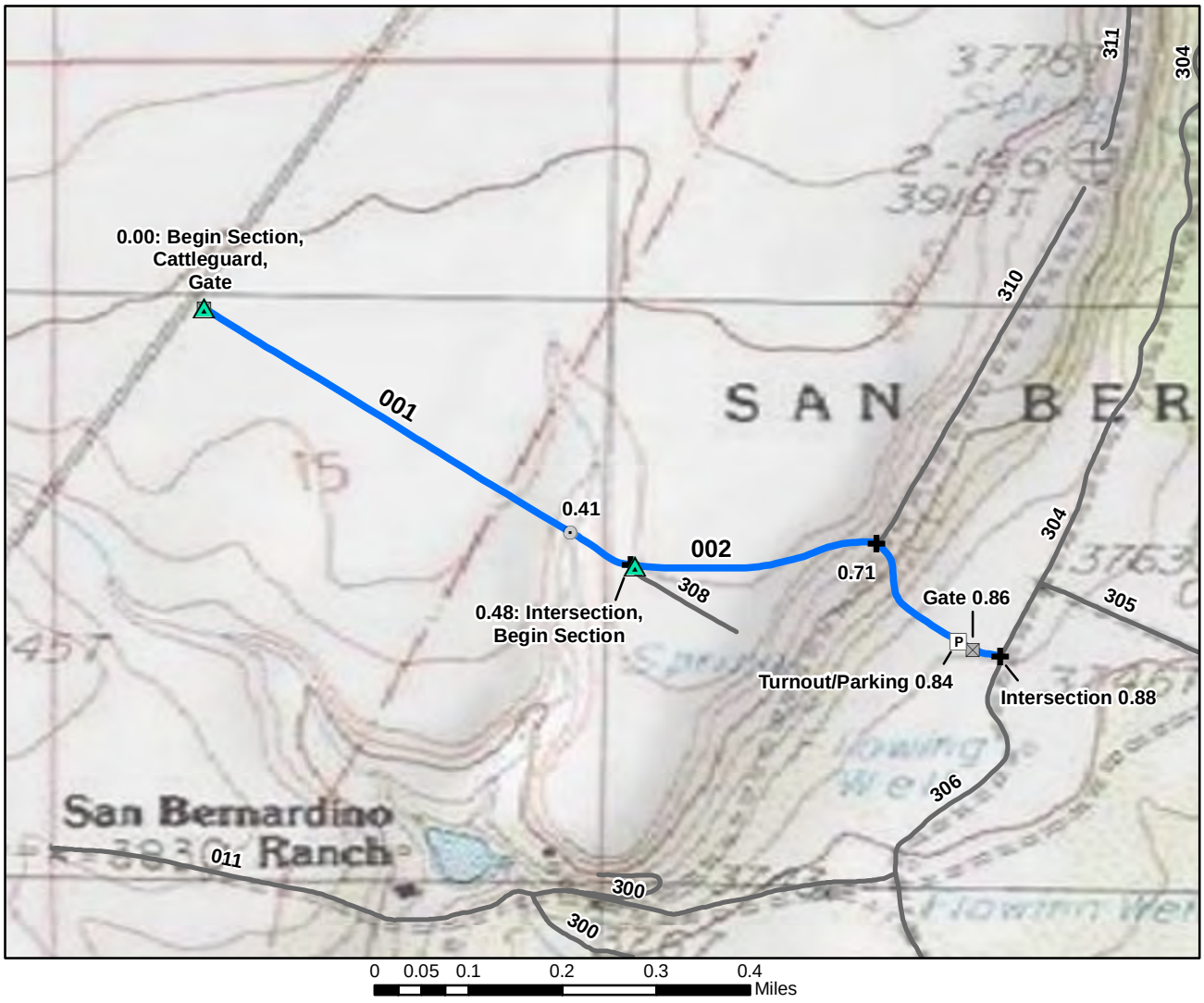
N

ROUTE: 308 Overlook Road TOTAL LENGTH: 0.12 Miles

ASSET: <Null>

RTE DESCRIPTION: From Entrance Road (Rte 309) to end of route

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.12 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 10 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | | | | |
| Remaining Service Life (years) | 10 | | | | |
| Cost Estimate | $0 | | | | |
| CRV | $42600 | | | | |




Excellent | Good | Fair | Poor | Failed

Bridge | Begin Section | Boat Ramp | Gate | Low Water Crossing | Fee Station | Culvert | Intersection | Political Boundary | Deficiency | Railroad Crossing | Turnout/Parking | Visitor Center | Problem Area

N

ROUTE: 309 Entrance Road TOTAL LENGTH: 0.88 Miles

ASSET: <Null>

RTE DESCRIPTION: From Geronimo Trail Road to Northfork Road (Rte 304)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | 002 | | | |
| Section Length (miles) | 0.48 | 0.40 | | | |
| Inspection Date | 3/13/2008 | 3/13/2008 | | | |
| ***Section Information*** | | | | | |
| Surface Type | Gravel | Gravel | | | |
| Number of Lanes | 1 | 1 | | | |
| Roadway Width (feet) | 14 | 12 | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | Excellent | | | |
| Remaining Service Life (years) | 10 | 10 | | | |
| Cost Estimate | $0 | $0 | | | |
| CRV | $327100 | $274200 | | | |


Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

ROUTE: 310 Shop Road TOTAL LENGTH: 0.42 Miles

ASSET: <Null>

RTE DESCRIPTION: From Entrance Road (Rte 309) to Shop Parking #1 (Rte 806)

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.42 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Gravel | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 12 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | | | | |
| Remaining Service Life (years) | 10 | | | | |
| Cost Estimate | $0 | | | | |
| CRV | $287400 | | | | |


Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

ROUTE: 311 Powerline Road TOTAL LENGTH: 0.62 Miles

ASSET:

RTE DESCRIPTION: From Shop Parking #1 (Rte 806) to north boundary of refuge

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.62 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 8 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Excellent | | | | |
| Remaining Service Life (years) | 10 | | | | |
| Cost Estimate | $0 | | | | |
| CRV | $217300 | | | | |


Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

ROUTE: 400 Hay Hollow Road TOTAL LENGTH: 0.40 Miles

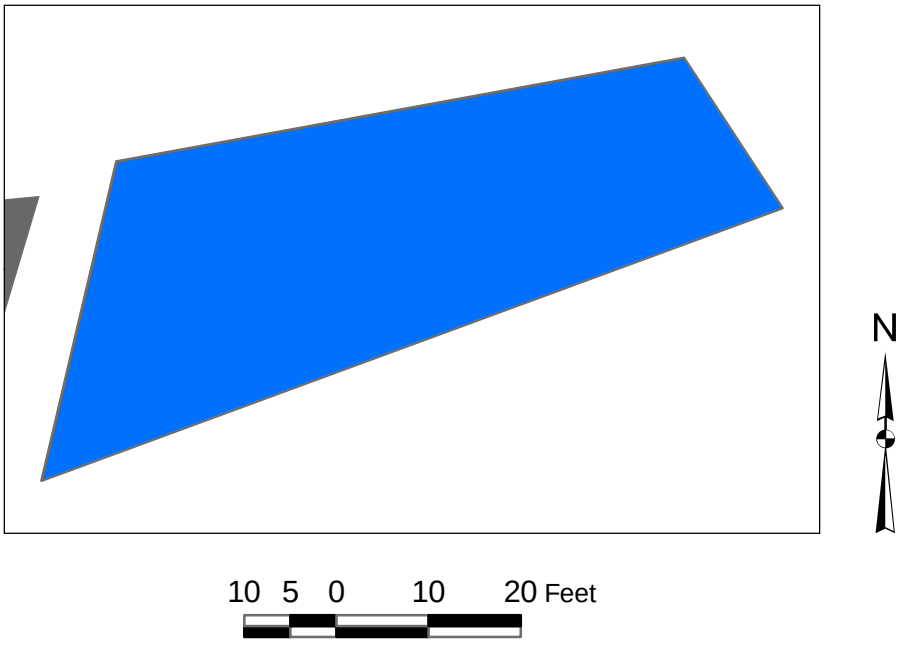
ASSET:

RTE DESCRIPTION: From north boundary of refuge to end of route at Hay Hollow Ponds

| | | | | | |
|---|---|---|---|---|---|
| Section Number | 001 | | | | |
| Section Length (miles) | 0.40 | | | | |
| Inspection Date | 3/13/2008 | | | | |
| ***Section Information*** | | | | | |
| Surface Type | Native | | | | |
| Number of Lanes | 1 | | | | |
| Roadway Width (feet) | 8 | | | | |
| ***Roadway Condition Information*** | | | | | |
| Condition | Good | | | | |
| Remaining Service Life (years) | 5 | | | | |
| Cost Estimate | $700 | | | | |
| CRV | $139300 | | | | |

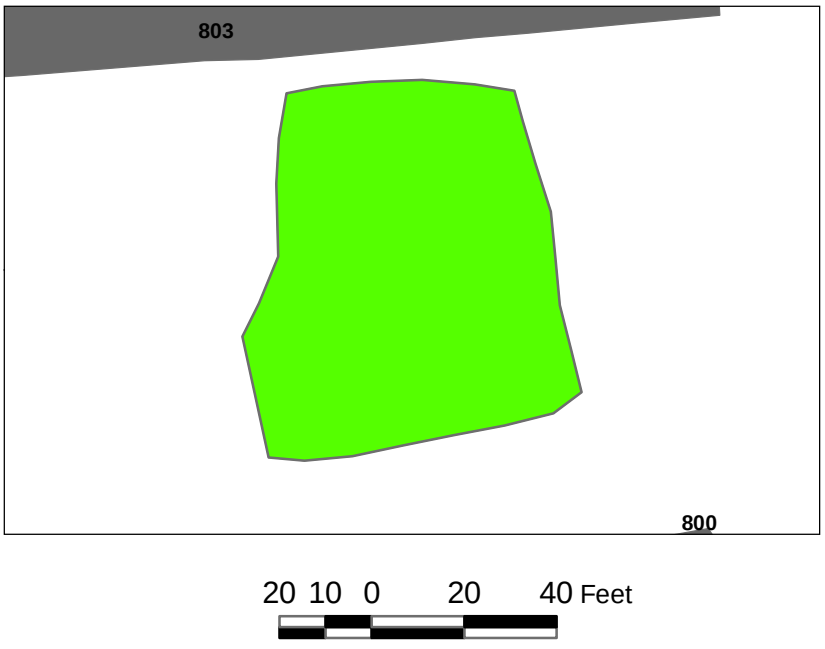
# Route 800: Visitor Center Parking #2

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Concrete | 1572 | Excellent | $0 |

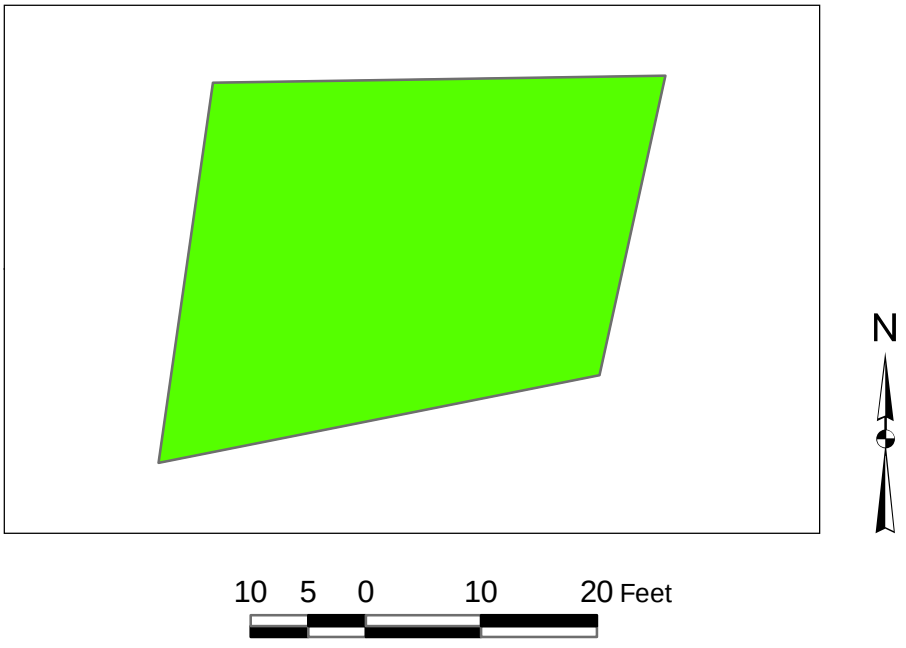
# Route 801: Visitor Center Parking #3

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Native | 4073 | Good | $600 |

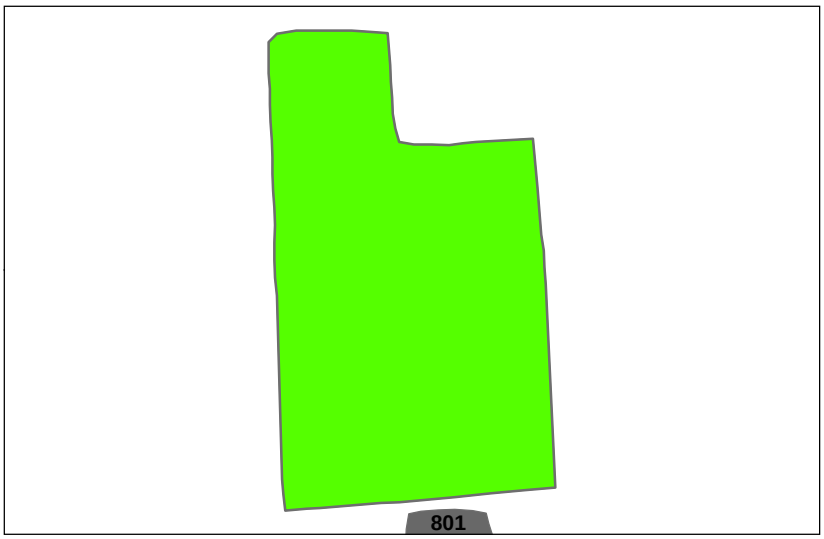
# Route 802: Visitor Center Parking #4

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Gravel | 959 | Good | $100 |

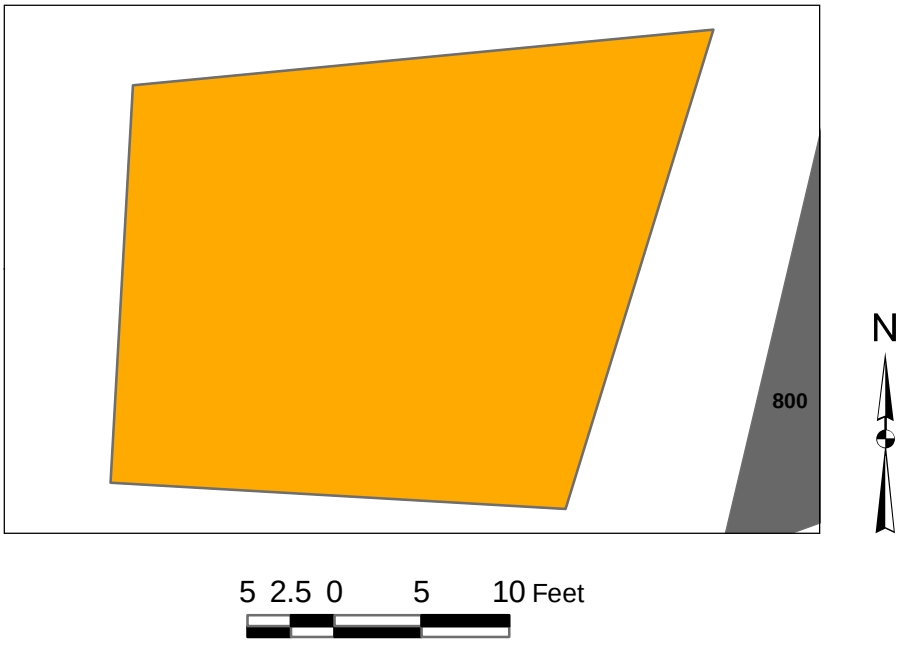
# Route 803: Visitor Center Parking #5

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Native | 38516 | Good | $5700 |

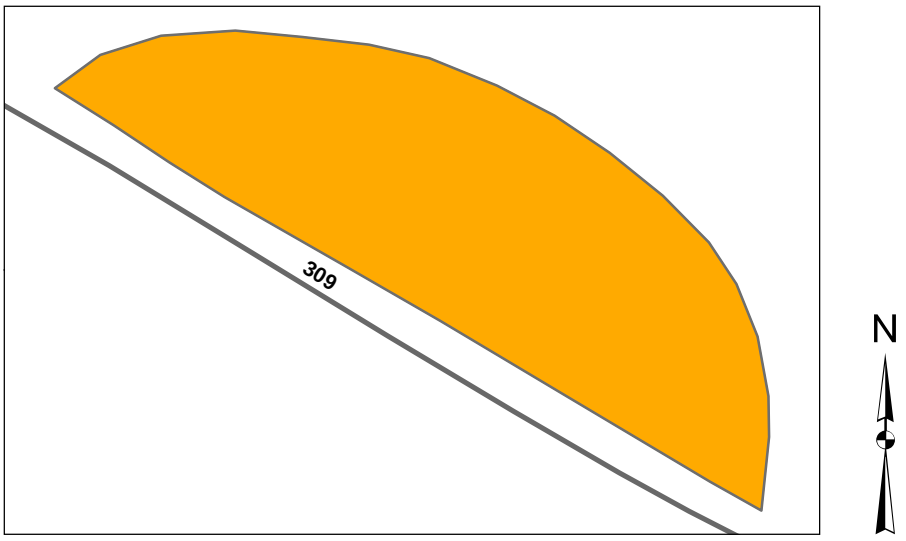
# Route 804: Visitor Center Parking #6

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Gravel | 635 | Poor | $700 |

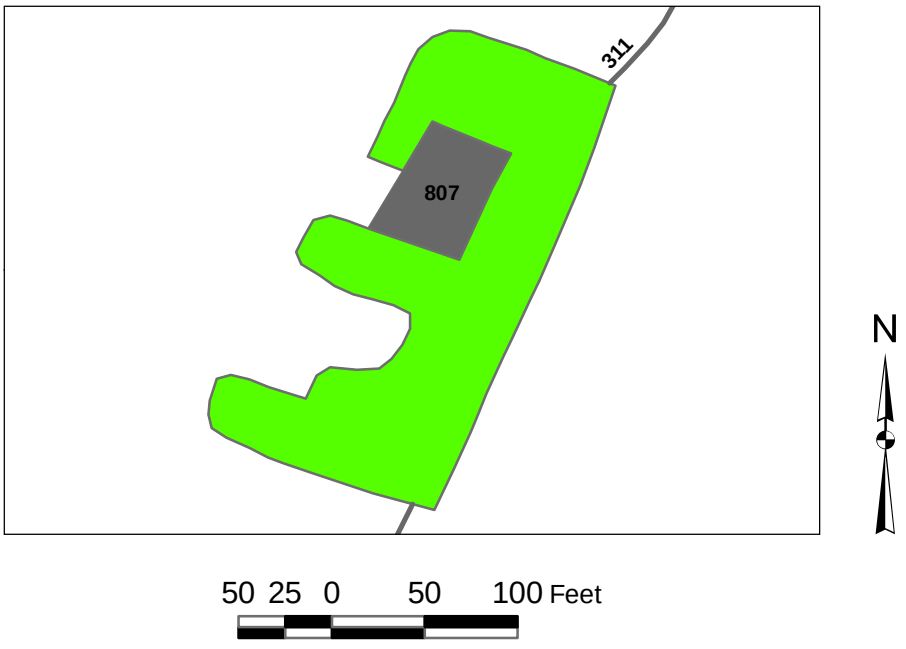
# Route 805: Restroom Parking

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| 10038313 | 3/13/2008 | Gravel | 3376 | Poor | $3700 |

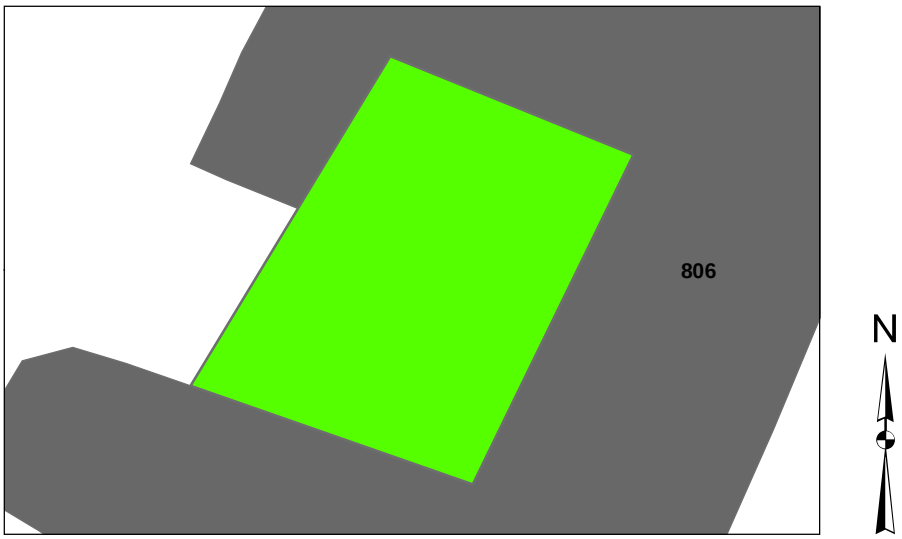
# Route 806: Shop Parking #1

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Native | 18963 | Good | $2800 |

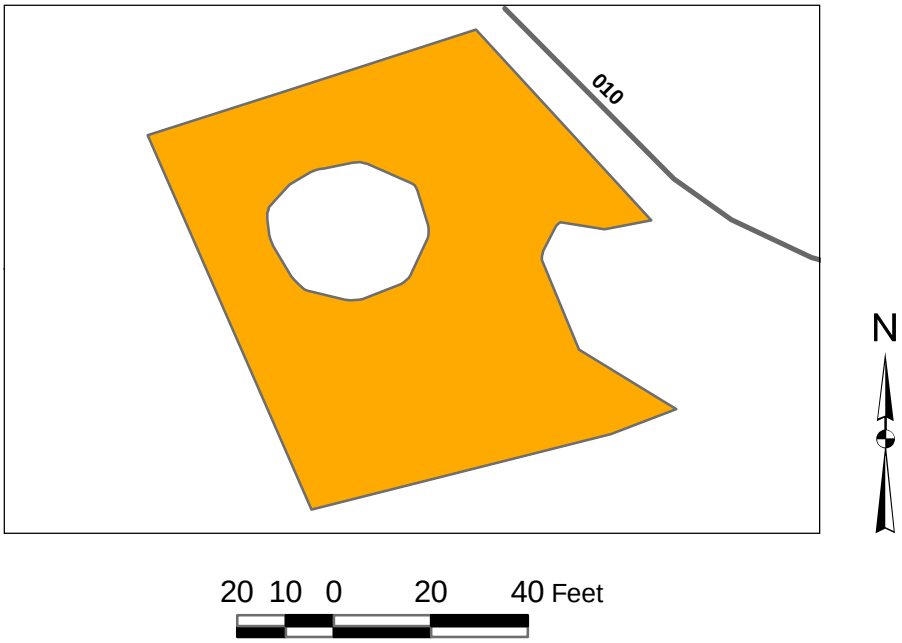
# Route 807: Shop Parking #2

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Concrete | 2684 | Good | $400 |

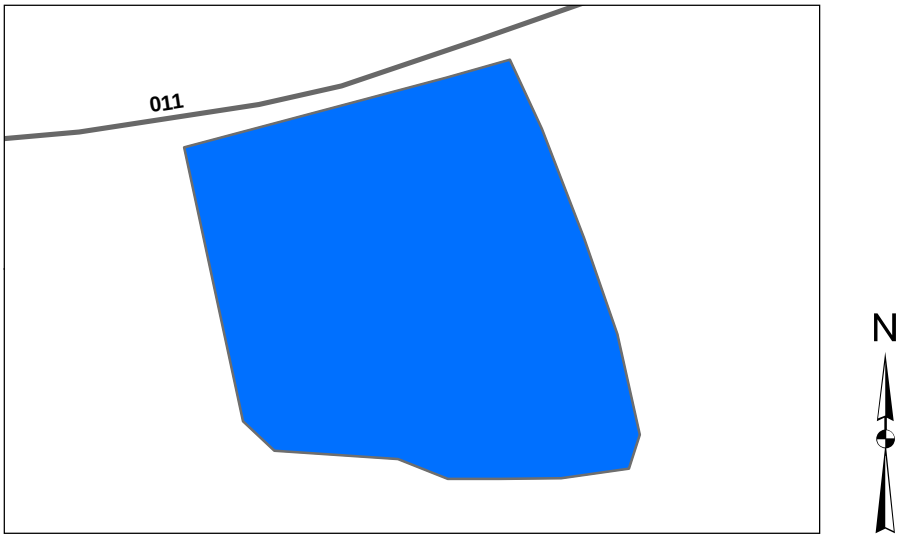
# Route 900: Visitor Center Parking #1

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| 10038304 | 3/13/2008 | Asphalt | 4809 | Poor | $22700 |

# Route 901: Visitor Parking

| Asset Number | Date Visited | Surface Type | Area (sq ft) | Condition | Cost to Improve |
|---|---|---|---|---|---|
| | 3/13/2008 | Gravel | 3570 | Excellent | $0 |

| San Bernardino NWR Bridge Inventory | | | | | |
|---|---|---|---|---|---|
| **Rte #** | **Milepost** | **NBIS #** | **Sufficiency Rating** | **Functionally Obsolete** | **Structurally Deficient** |
| 300 | 0.07 | N/A | N/A | N/A | N/A |

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 010  ROUTE NAME: Headquarters Entrance Road


Photo # 2676 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 011  ROUTE NAME: Slaughter Road


Photo # 2686 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 300  ROUTE NAME: Slaughter Administrative Road

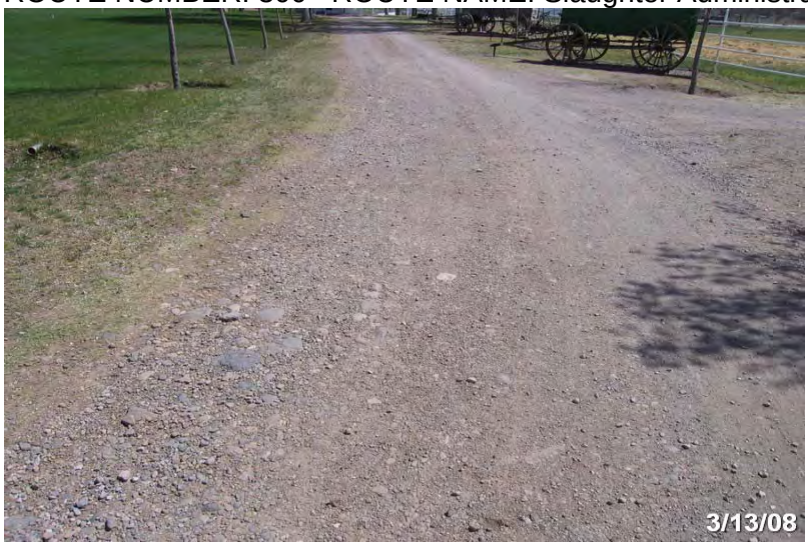



Photo # 2688 - MP 0.00 - Begin Route at Begin Section

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 300 ROUTE NAME: Slaughter Administrative Road


Photo # 2687 - MP 0.07 - Bridge

ROUTE NUMBER: 300 ROUTE NAME: Slaughter Administrative Road


Photo # 2728 - MP 0.08 - Begin Section 002

ROUTE NUMBER: 300 ROUTE NAME: Slaughter Administrative Road


Photo # 2730 - MP 0.11 - Begin Section 003

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 301 ROUTE NAME: West Border Road


Photo # 2692 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 301 ROUTE NAME: West Border Road


Photo # 2693 - MP 0.42 - Begin Section 002

ROUTE NUMBER: 302 ROUTE NAME: East Border Road


Photo # 2696 - MP 0.00 - Begin Route at Begin Section

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 303 ROUTE NAME: Black Draw Trail


Photo # 2697 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 303 ROUTE NAME: Black Draw Trail


Photo # 2698 - MP 0.59 - Begin Section 002

ROUTE NUMBER: 303 ROUTE NAME: Black Draw Trail


Photo # 2699 - MP 0.76 - Begin Section 003

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 303  ROUTE NAME: Black Draw Trail


Photo # 2700 - MP 0.93 - Begin Section 004

ROUTE NUMBER: 304  ROUTE NAME: Northfork Road


Photo # 2701 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 304  ROUTE NAME: Northfork Road


Photo # 2703 - MP 1.00 - Begin Section 002

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 305  ROUTE NAME: Calle Del Muerto


Photo # 2705 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 306  ROUTE NAME: Double PhD Road


Photo # 2706 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 307  ROUTE NAME: Hackberry Road


Photo # 2707 - MP 0.00 - Begin Route at Begin Section

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 307 ROUTE NAME: Hackberry Road


Photo # 2708 - MP 0.40 - Begin Section 002

ROUTE NUMBER: 308 ROUTE NAME: Overlook Road


Photo # 2712 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 309 ROUTE NAME: Entrance Road


Photo # 2713 - MP 0.00 - Begin Route at Begin Section

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 309  ROUTE NAME: Entrance Road


Photo # 2710 - MP 0.48 - Begin Section 002

ROUTE NUMBER: 310  ROUTE NAME: Shop Road


Photo # 2720 - MP 0.00 - Begin Route at Begin Section

ROUTE NUMBER: 311  ROUTE NAME: Powerline Road


Photo # 2723 - MP 0.00 - Begin Route at Begin Section

# FEATURES PHOTOGRAPHS

ROUTE NUMBER: 400  ROUTE NAME: Hay Hollow Road


Photo # 2726 - MP 0.00 - Begin Route at Begin Section

## Accident Summary

| Number of Accidents Reported | Timespan of Accidents | Injuries | Fatalities |
|---|---|---|---|
| 0 | No Accidents Reported | 0 | 0 |

# APPENDIX

| FWS ROAD FUNCTIONAL CLASSIFICATION | |
|---|---|
| **Class I** | Principal Refuge Road (Public Roads) - Routes that constitute the main access route, main auto tour route, or thoroughfare for refuge visitors. These routes are accessible by 2WD vehicles. Routes are numbered from 10 to 99. |
| **Class II** | Connector Refuge Road (Public Roads) - Routes that provide circulation within the refuge. These routes can also provide access to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, education centers, etc. These routes are accessible by 2WD vehicles. Routes are numbered from 100 to 199. |
| **Class III** | Special Purpose Refuge Road (Public Roads) - Roads that provide circulation within special use areas such as campgrounds or public concessionaire facilities or access to remote areas of the refuge. These routes may not be 2WD accessible. Routes are numbered from 200 to 299 |
| **Class IV** | Administrative Access Road (Administrative Roads) - Routes intended for access to administrative developments or structures such as maintenance offices, employee quarters, or utility areas. These routes are accessible by 2WD vehicles. These routes may restrict access to the general public. Routes are numbered from 300 to 399. |
| **Class V** | Restricted Road (Administrative Roads) - Routes normally closed to the public, such as maintenance roads, service roads, patrol roads, and fire breaks. These routes may be open to the public for a short period of time for a special use, such as hunting access. These routes may not be 2WD accessible. Routes are numbered from 400 to 499. |

A refuge road system contains those routes within or giving access to a refuge or other unit of the FWS that are administered by the FWS, or by the Service in cooperation with other agencies. The assignment of a functional classification (FC) to a refuge road is not based on traffic volumes or design speed, but on the intended use or function of that route.

# DESCRIPTION OF RATING SYSTEM

Rating Data is collected on four different surface types: Asphalt, Concrete, Gravel, and Native. The Utah LTAP Center's Remaining Service Life (RSL) system is used for all surface types. The RSL system is based on the Strategic Highway Research Program's (SHRP) Distress Identification Manual.

## Asphalt Rating System

Data is collected on the following distresses and conditions:

- **Fatigue Cracking** - Interconnected cracks forming small irregular shapes.
- **Longitudinal Cracking** - Cracks running parallel with the roadway, in the direction of traffic.
- **Transverse Cracking** - Cracks perpendicular to the roadway, going across the lane or lanes.
- **Block Cracking** - Interconnected cracks forming large blocks.
- **Edge Cracking** – Cracks running along the edge of the pavement surface.
- **Patches** - Original surface repaired with new asphalt patch material.
- **Potholes** - Holes or depressions in the pavement.
- **Rutting** - surface depressions in the wheel paths.
- **Roughness –** Evenness of pavement for serviceability.
- **Drainage** – Ability of the road surface to drain water based on proper slope.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

**Rating Index Formula**

Fatigue, longitudinal, transverse, block, and edge cracking, along with patching and potholes are rated on a 0 - 9 scale (0 = no distress, 9 = maximum distress). The rating given is based on the extent and the severity of the distress. Rutting, roughness, and drainage are rated on a 0 - 3 scale (0 = excellent, 3 = poor). Each distress type has given Remaining Service Life (RSL) values (in years) based on the rating for that particular distress. The distress with the rating resulting in the lowest RSL value is considered to be the governing distress. That value is then assigned as the RSL of the road segment.

## Concrete Rating System

Data is collected on the following distresses and conditions:

- **Spalling of Joints** – Chipping, breaking, or cracking of slab edges
- **Joint Seal Damage** – Any damage or condition that enables materials or water to infiltrate into the joint from the surface.
- **Corner Breaks** – A portion of the slab separated by a crack that intersects the adjacent transverse and longitudinal joints, forming approximately a 45° angle to the direction.
- **Broken Slabs** – Faulting and/or cracking localized to individual slabs.
- **Faulting** – Difference in elevation across a crack or joint.
- **Longitudinal Cracking** – Cracks in the pavement running parallel to road.

- **Transverse Cracking** - Cracks in the pavement running perpendicular to the direction of traffic.
- **Patch Deterioration** – Faulting, settling, or cracking of previously placed patch
- **Map Cracking** – A series of cracks that extend only into the upper surface of the Slab

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

**Rating Index Formula**
The rating procedure for concrete pavement is the same as that for asphalt pavement described previously. Each of the distresses described above are rated on the same 0 – 9 scale. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.

## Gravel and Native Rating System

Data is collected on the following distresses and conditions:
- **Cross Section (Crown)** - Roadway built so that the center is higher than the shoulder, to prevent water from pooling on roadway.
- **Roadside Drainage** - Roadside ditches and culverts to handle water flow and prevent pooling on the roadside.
- **Corrugations (Washboarding)** - Small trenches or holes developing perpendicular to the roadway.
- **Potholes** - Holes or depressions in the roadway.
- **Rutting** - Depressions running parallel with the roadway, in the wheelpaths.
- **Dust** - Amount of dust caused by traffic.
- **Loose Aggregate (Gravel Only)** - Loose gravel, typically piled up on the roadway edges or centerline.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

**Rating Index Formula**
The rating procedure for unpaved roads is the same as that for asphalt and concrete pavements described previously. Of the distresses described above, corrugations, potholes, rutting, and loose aggregate are rated on the same 0 – 9 scale previously mentioned. Cross section, roadside drainage, and dust are rated on the same 0 – 3 scale described for asphalt pavement. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.

## Condition Descriptions by Surface Type

The following definitions are used to describe pavement condition for the various surface types. These are general guidelines for condition indications.

## Asphalt

**Excellent** – Recently constructed or overlaid road where construction or overlay was performed correctly- No maintenance required. RSL = 19-20 years.

**Good** – Low extent longitudinal and transverse cracks. All cracks are 1/4" or less with little or no crack erosion. Patches are in good condition and applied correctly. Routine Maintenance recommended. RSL = 13-18 years.

**Fair** - Roads are in good structural condition with little or no fatigue cracking. Longitudinal, transverse, and edge cracking is at medium extent and severity. Block cracking is not extensive. Any patches are in good condition. Preventative maintenance recommended. RSL = 7-12 years.

**Poor** - Road beginning to show signs of structural distress. Fatigue cracking is medium to high extent and medium severity. Cracking will be severe. Surface may have severe block cracking and show. Patches are in fair to poor condition. There is moderate distortion or rutting and occasional potholes. Rehabilitation recommended. RSL = 1-6 years.

**Failed** - Road is severely deteriorated. Signs of structural failure appear along with severe and extensive fatigue cracking, distortion, potholes, or extensive patches in poor condition. Reconstruction recommended. RSL = 0 years.

## Concrete

**Excellent** - New pavement. No maintenance required. RSL = 19-20 years

**Good** - First signs of transverse cracking, patch or repair, more extensive pop-outs, or scaling. Sealing or routine maintenance recommended. RSL = 13-18 years.

**Fair** – Pavement has join or crack spalling, and/or faulting, along with cracking at corners with broken pieces. Any Patches are in fair condition and faulting is at a minimum. Preventative maintenance recommended. RSL = 7-12 years.

**Poor** - Joints and cracks are open 1 inch, spalled, or patched. Faulting is more severe. Rehabilitation recommended. RSL = 1-6 years.

**Failed** - Most slabs have failed structurally, and faulting is severe. Reconstruction recommended. RSL = 0 years.11-9

The following table shows the relationship between RSL and condition.

| SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Asphalt and Concrete Pavements) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | FAILED | POOR | | FAIR | | GOOD | | EXCELLENT |
| RSL Years | 0 | 1-3 | 4-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-20 |

## Gravel and Native

**Note** - Native surfaces do not have a gravel layer.

**Excellen**t - Newly constructed road that has been constructed properly with proper crown, drainage and gravel layer. Little or no distress. No maintenance recommended. RSL = 8-10 years.

**Good** - Crown, drainage provisions, and gravel layer are in good condition. Distress limited to traffic effects such as dust, loose aggregate, and low severity corrugations (wash boarding). RSL = 5-7 years.

**Fair** - Adequate drainage and crown through majority of roadway. Crown repair, ditch improvement may be necessary. Road has more severe corrugations and potholes. Preventative maintenance recommended. RSL = 3-4 years.

**Poor** - Travel at slow speeds is necessary. Additional gravel layer needed to carry traffic. Poor crown. Ditching is inadequate and rutting is extensive and severe. Rehabilitation recommended. RSL = 1-2 years.

**Failed** - Travel is difficult, and road may be closed at times. Rutting and Corrugations are very severe. Total Reconstruction of road is recommended. RSL = 0 years.

The following table shows the RSL values for gravel and native roads in terms of excellent,good, fair, poor, and failed condition.

| SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Gravel and Native Surfaces) | | | | | |
|---|---|---|---|---|---|
| | FAILED | POOR | FAIR | GOOD | EXCELLENT |
| RSL Years | 0 | 1-2 | 3-4 | 5-7 | 8-10 |